

Annex 7. Summary Report on DS-SLM Local Action Plan for SLM option scaling out

Introduction

This summary report is presented the Preliminary Action Plan for SLM scaling out at local and landscape levels in accordance with Methodological Logframe and Workplan of DS-SLM Project. The report is consist of the following subtasks : (i) screening and selection of SLM technologies and their specific costs; (i) GIS Mapping of SLM technology options : and (iii) development of Preliminary Action Plan on SLM scaling out for two project territories: (a) irrigated agricultural lands of Djizak region and (b) rainfed agricultural lands of Kashkadarya region.

Selection of SLM Technologies Options

Selection of SLM technologies for implementation and scaling out in DS-SLM project areas was provided in the following stages:

Stage 1: The general list of technologies, which including of 60 SLM technologies and 5 approaches, were prepared on the bases of collection and systematization of available information and documents (publications, review of outputs of SLM projects, official and international sources - WOCAT, FAO, CACILM, ICARDA, etc. in line with Output 2.3. of the project Lograme and AWP 2017 (See **Annex 3**).

Stage 2. Screening of the general list of T&A and compiling of selected list of SLM T&A, including (39 T&A) to follow-up evaluation and discussion with target groups in line with Output 4.4. of the project Lograme and AWP 2017 (See **Annex 4.2**).

Stage 3. The final list of priority technologies and approaches was compiled with national and subnational experts and organizations in the frame of «National SLM Delivery Capacity Building Workshop». It includes 14 of SLM technoligis and approaches, covering various land use categories taking into account natural landscapes and soils, and meliorative conditions of the project territory (See **Annex 4.2**). Cost estimation of selected 14 SLM technologies was provided based on field data, farm inputs and statistic information collected by Consultants.

GIS mapping of SLM technologies options on subnational level

The selected SLM technologies were grouped for Kashkadarya and Djizak regions territory depending on natural and meliorative conditions and specific needs of improvement and reclamation of agricultural lands. Their distributions and costs of SLM options are illustrated in **Map 7.1 and 7.2**.

Resulted mapping of appropriate and acceptable SLM technology options is essential for management and planning of scaling out activities.

Local Action Plan for SLM scaling out to support of decision making at local level

Preliminary Action Plan of the Operational Strategy on scaling out of SLM are developed based on the outputs and achievements of project activities at local and subnational levels, using FAO PLUD guidelines, tools and new products (UNCCD, ICARDA, etc, 2017), and taking into account national and international policy transformations and programmic documents, such as National Strategy for Action - Uzbekistan 2017-2021, UNCCD LDN programme and Strategy 2030 and other.

In accordance with FAO PLUD EE Zoning of Djizak and Kashkadarya regions territory with regards to SLM options were conducted based on the following indicators: natural & climatic zone, soil and landscapes, SLM technologies, key stakeholders – main actors, constraints and main actions and measures. Local authorities and decisions makers have had an opportunity to indicate environmental and financial needs and the economic and social benefits for scaling out of SLM for more widely (See **Table 7.3**).

Successful Case studies of the SLM scaling out in Uzbekistanis identified in accordance with Matrix¹ and presented in **Table 7.4**

Table 7.1. List of selected SLM technologies options and their costs for implementation

#	SLM Technology	Finance needs/costs
		\$US / ha
1	Crop diversification on salt-affected soils with introduction legumes and green manures.	200
2	Crop diversification on salt-affected and gypsiferous soils with introduction legumes and green and deep ripping	250
3	Laser land leveling for increase in efficiency of use of irrigating water.	350
4	Trees planting for the lowering of groundwater levels (biodrainage)	700
5	Adaptation of innovative drought- prone and salt - tolerant varieties of crops (“Gulistan” cotton variety, grains, etc).	100
6	Improvement of surface irrigation method by application of irrigation equipment	200
7	Cotton irrigation on the lands subjected to irrigation erosion, with straw mulching of end furrows	20
8	Improvement of lands in arid conditions through creation of pistachio varietal plantations	1230
9	Increase in forage production by sowing of desert drought-resistant herbs on rainfed lands.	100
10	Planting of almonds on small terraces for increase in efficiency of rainfed lands and prevention of erosion	311
11	Rotation of pastures	3450
12	Pasture improvement by overseeding forage grasses	250
13	Bio saline technology	250
14	Sand fixation	2150

¹ R. J Thomas, M. Reed, et al, Scaling up Sustainable Land Management and Restoration of Degraded Land. In: Global Land Outlook Working paper, 2017

Table 7.2. Zoning of the Project Regions Territory with Regards to SLM Technologies Options

#	Option	SLM Technology Option	Finance needs/costs	
			\$US / ha	Cost Rate
1	13	Bio saline technology	250	Low-cost
2	10	Planting almonds on small terraces	311	
3	1,5,6	New salt tolerant varieties + diversification of crops + improved furrow irrigation	400	Mean cost
4	1,6	Diversification of crops + improved furrow irrigation	400	
5	9,10	Sowing of desert drought-resistant grasses on the mountain + planting almonds on small terraces	411	
6	1,6,7	Irrigation with straw mulching of ends furrows + diversification of crops + improved furrow irrigation	420	
7	2,5,6	New salt tolerant varieties + diversification of crops with deep loosening of soils + improved furrow irrigation	450	
8	2,6	Diversification of crops with deep loosening of soils + improved furrow irrigation	450	
9	2,7	Diversification of crops with deep loosening of soils + Irrigation with straw mulching of ends furrows	470	High-cost
10	1,3,5,6	Laser planning + new salt tolerant varieties + improved furrow irrigation + diversification of crops	750	
11	1,3,6	Laser planning + improved furrow irrigation + diversification of crops	750	
12	2,3,5,6	Diversification of crops with deep loosening of soils + laser planning + new salt tolerant varieties + improved furrow irrigation	800	
13	2,3,6	Laser planning + improved furrow irrigation + diversification of crops with deep ripping of soils	800	
14	1,4,5,6	New salt tolerant varieties + improved furrow irrigation + diversification of crops + biodrainage	1100	
15	1,4,6	Biodrainage + improved furrow irrigation + diversification of crops	1100	Very high-cost
16	2,4,5,6	Diversification of crops with deep loosening of soils + biodrainage + new salt tolerant varieties + improved furrow irrigation	1150	
17	2,4,6	Improved furrow irrigation + diversification of crops with +deep ripping of soils + biodrainage	1150	
18	8	Creation of pistachio varietal plantations	1230	
19	1,3,4,5,6	Diversification of crops + laser planning + biodrainage + new salt tolerant varieties + improved furrow irrigation	1450	
20	1,3,4,6	Laser planning + biodrainage + improved furrow irrigation + diversification of crops	1450	
21	2,3,4,5,6	Diversification of crops with deep loosening of soils + laser planning + biodrainage + new salt tolerant varieties + improved furrow irrigation	1500	Extremely high-cost
22	2,3,4,6	Diversification of crops with deep loosening of soils + laser planning + biodrainage + improved furrow irrigation	1500	
23	8,10	Creation of pistachio varietal plantations + planting almonds on small terraces	1541	
24	14	Fixing of movable sands	2150	
25	11,12	Rotation of pastures + pasture enrichment	3700	
26	11,12,13	Rotation of pastures + pasture enrichment + bio desalinization	3950	

Mapping of SLM Options on Acceptability and Cost

Figure 7.1. SLM options applicability in the Kashkadarya Region

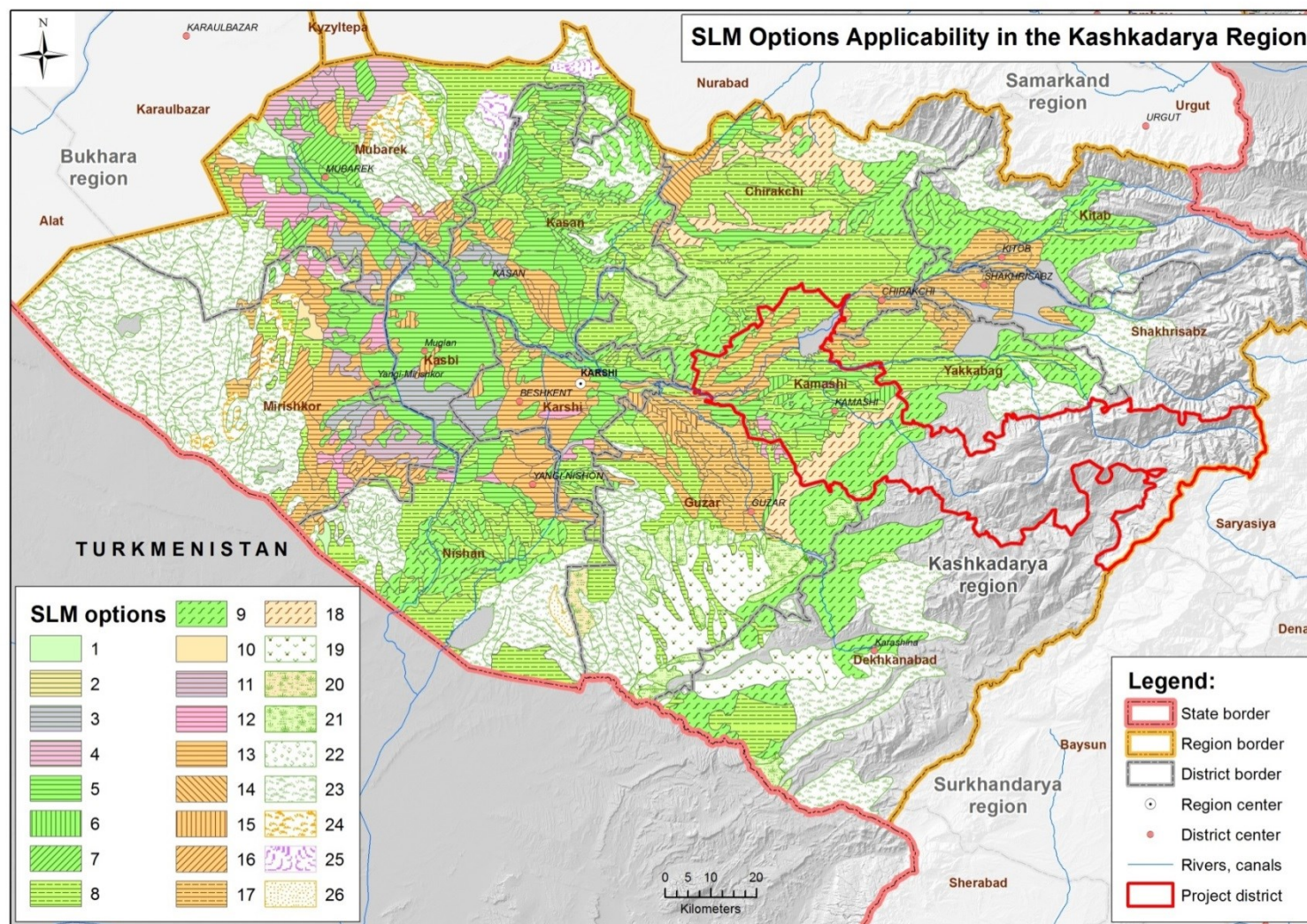
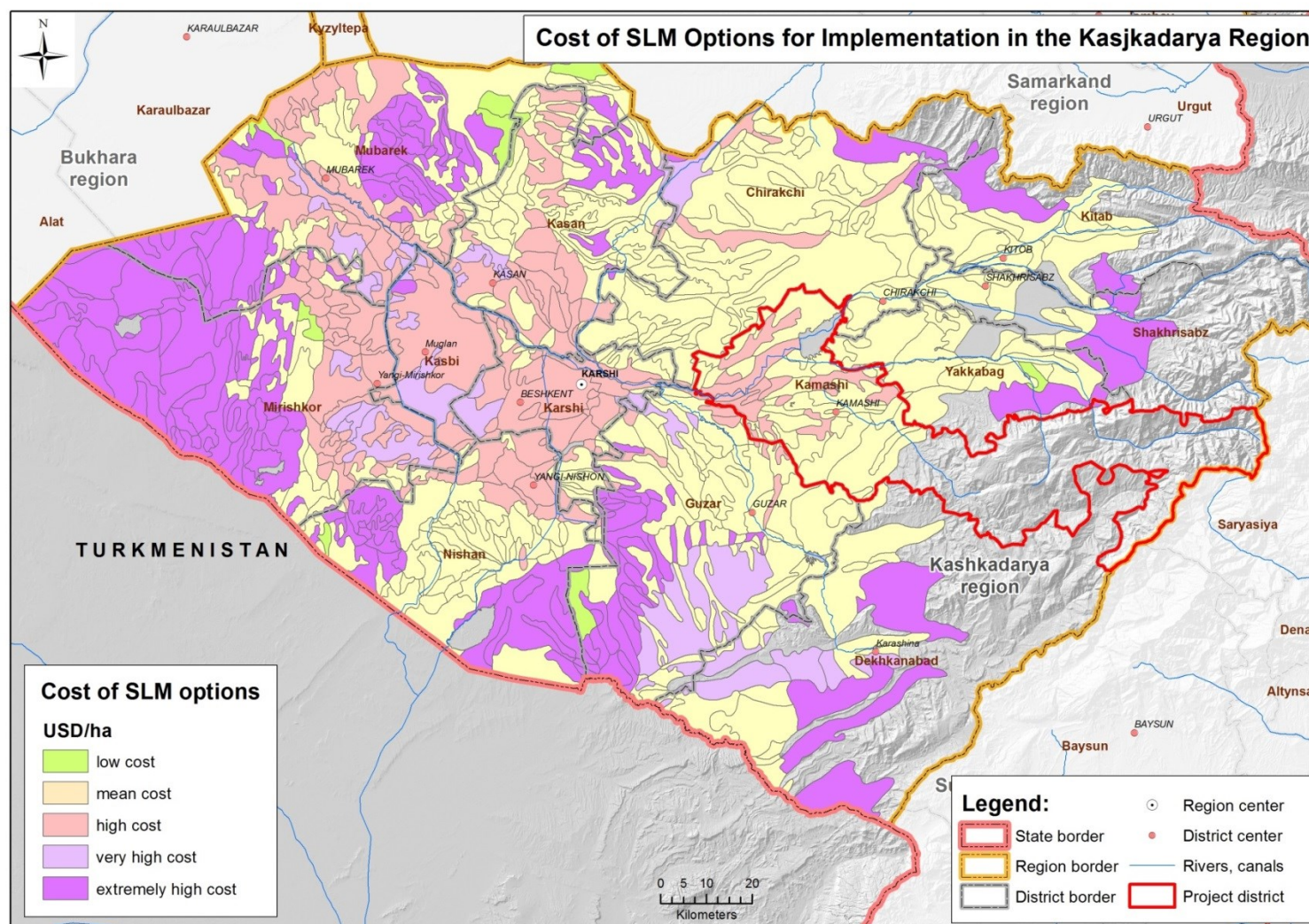




Figure 7.3. Cost of SLM options for implementation in the Kashkadarya Region

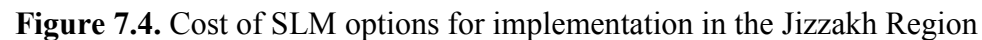


Table 7.3. Action Plan for Scaling out of SLM Options to Support of Decision Making

Index	Landscape and soils	SLM Technology		Potential actor/ stakeholder	Constraints	Local actions and measures
		Technology	Finance needs/costs, \$US / ha			
Zarbdar Project Area: Irrigated salt affected lands along the Southern Main Canal in the East of the Jizzakh region						
IA-1	Irrigated lands, landscape with heightened slopes (>0,02-0,01)	Cotton irrigation on the lands subjected to irrigation erosion, with straw mulching of furrows	Low-cost (50)	Agro services, farmers	Lack knowledge and awareness	Consultation and extension services; Capacity building of all segments of population: local governances and decision makers, O&M system staff, farmers. Better collaboration with all actors Improving of the technical services of agricultural machinery and equipment units and schedule of using required techniques between farmers, WUAs and agro firms; Development of Action Plan, Initiate concrete project Improvement micro crediting for farmer and land users
IA-2.	Slightly flat landscape with low fertility soil, a light texture.	Crop diversification on salt-affected soils with introduction legumes and siderats.	Low-cost (200)	Farmer, Agro services	Lack of skills and experience	
IA-3	Slightly flat landscape , irrigated lands with salt-affected soils	Adaptation of innovative drought-prone and salt - tolerant varieties of crops (“Gulistan” cotton variety, grains, etc).	Low-cost (200)	Scientific institutions, farmers	Lack awareness, new seeds issues	
IA-4	Slightly flat landscape , Irrigated lands with slopes <0,01-0,02	Improvement of surface irrigation method by application of irrigation equipment	Low-cost (200)	Agro services, farmers	Lack knowledge and awareness	
IA-5	Slightly flat landscapes with low fertility soils, a heavy texture and gypsum containing,	Crop diversification on salt-affected and gypsiferous soils with introduction legumes deep ripping	Mean-cost (250)	Agro services, farmers, credit banks	Lack of knowledge and awareness, and equipment issue	
IA-6	Irrigated croplands with slopes <0,01-0,005	Laser land leveling for increase in efficiency of use of irrigating water.	Mean-cost (350)	Agro services, credit banks, WUAs, farmers	Lack experience, knowledge, equipment and finance issues	
IA-7	Slightly flat landscape with alluvial soils with some drainage issues and soil salinity with water table <2m	Trees planting for the lowering of groundwater levels (biodrainage)	Medium-cost (700)	Agro services, credit banks, WUAs, farmers	Lack of awareness and skills in new varieties, seed, finance issues	

Index	Landscape and soils	SLM Technology		Potential actor/ stakeholder	Constraints	Local actions and measures
		Technology	Finance needs/costs, \$US / ha			
Kamashi Rainfed Area 2: Rainfed agricultural landscapes in the Kamashi district in the upper of Kashkadarya river basin within Southern foothill semi-desert province						
RA-1	Undulating rainfed landscapes with slopes 0,01-0,02, low probability of precipitation, light and typical sierozems	Increase in forage production by sowing of desert drought-resistant herbs on rainfed lands.	Low-cost (100)	Agro services, seed farming organizations, farmers	Lack awareness, seeds of desert drought-resistant	Development of collaborative plan of actions and project interventions;
RA-2	Ridge-undulating plains of foothills, rainfed landscapes with slopes 0,01-0,02 , typical sierozem soils	Planting of almonds on small terraces for increase in efficiency of rainfed lands and prevention of erosion	Mean-cost (311)	Forestry farms, agro services, credit banks, farmers	Lack knowledge, awareness and finances	Establish of consultation and extension services/ units;
RA-3	Undulating rainfed landscapes with slopes 0,01-0,02, low probability of precipitation, light and typical sierozems	Improvement of lands in arid conditions through creation of pistachio varietal plantations	Very high-cost (1230)	Forestry farms, agro services, credit banks, farmers	Lack knowledge, awareness and finances	Building scaling up capacities of local and subnational institutions; Implementation of action plan, better collaboration with all actors Improvement micro crediting for farmer and land users Improvement of work on farmers servicing
Kamashi Pasture Area 3: Pasture lands in the in the Kamashi district in the upper of Kashkadarya river basin within southern foothill semi-desert province						
P-1	Desert and semi-desert low productive pasture land	Rotation of pastures	Extremely high-cost (3450)	Agro services, credit banks, local authority, farmers	Lack knowledge, awareness and finances issues	Building capabilities Consultation and extension services
P-2	Desert and semi-desert low productive pasture land due	Pasture improvement by overseeding desert forage grasses	Low-cost (250)	Agro services, seed farming organizations, farmers	Lack knowledge and insufficient awareness, seeds	Better collaboration with all actors Improvement micro

Index	Landscape and soils	SLM Technology		Potential actor/ stakeholder	Constraints	Local actions and measures
		Technology	Finance needs/costs, \$US / ha			
	to overgrazing					crediting for farmer and land users
P-3	Plots of grassland with very low productivity as a result of high saline soils	Bio saline technology	Low-cost (250)	Agro services, seed farming organizations, farmers	Lack knowledge, awareness, seeds	

Table 7. 4 Successful Case Studies of the SLM Scaling out: Uzbekistan

Key success factor	Case study 1 : GEF/UNDP Project «Achieving Ecosystem Stability» (2011-2015)	Case study 2.: GEF UNDP Project «Reducing pressures on natural resources from competing land use in non-irrigated arid mountain, semi-desert and desert landscapes of Uzbekistan» (2014-2017)	Case study: ZEF /UNESCO project «Ecological and Economic restructuring of Land and Water Use in the Region Khorezm –Pilot Project in Development Research» (2001-2012)	Case study: GEF/FAO project «Decision Support for Mainstreaming and Scaling out Sustainable Land Management – Uzbekistan» (2016-2018)
1. Consistently fund and adaptively plan	Communication plan and participatory project on the SLM policies of integrated land use in drought-prone regions are developed.	Plan of alternative actions for land use improvement: <ol style="list-style-type: none"> 1) Creation of the center for processing of herbs 2) Innovative approaches in livestock production; 3) Construction of a livestock complex with alternative energy sources 	The comprehensive, evidence-based plan of restructuring of land use at three levels of activity: policy, institution, and technologies.	Strategy and the plan for scaling out of SLM are developed for: <ul style="list-style-type: none"> - irrigated zone - rainfed zone
2. Select SLM options for scaling up and out, based on best available evidence	SLM practices: <ul style="list-style-type: none"> • Rotation of pastures • Enrichment of pastures • Mobile sands fixing More than 16000 ha of lands around of settlements were rehabilitated.	<ol style="list-style-type: none"> 1) Selection of pilot sites (240 hectares) for approbation of SLM agro-technologies of rainfed agriculture 2) adaptation of zero tillage for cultivation of drought-resistant rainfed cultures 2) Creation of an orchard (2,1 hectares) on drop irrigation for demonstration and scaling out 	-Resource-saving technologies in agriculture, control over drainage and salinization, agroforestry, new market crops on the degraded lands, etc.	SLM technologies for the irrigated lands: diversification of cultures with introduction of bean, cultivation of perspective drought- and salt- resistant varieties of cotton: <u>for rainfed lands</u> : planting of almonds on small terraces, desert drought-resistant herbs on rainfed areas.
Identify and engage stakeholders et all relevant scales recognizing and appealing to the motives of different groups	Various groups of stakeholders, including women, cattle breeders, shepherds are attracted. Alternative sources of income are created.	Various groups of stakeholders, including women, are attracted. Alternative sources of income are created.		Wide range of stakeholders, including local authorities, farmers, women, aksakals are involved in scaling up and out of SLM.
3. Build capacity for scaling up	Ten educational workshops are held in which 237 people, including 109 women have participated.	Creation of the Information and resource center for land use at Agricultural university.	The long-term scientific research program is realized. 14 graduate students, 28 masters and -	Multilevel approach to increase in potential: national, sub-national and local level. Training of various target

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	Local cattle-farmers are trained in methods of agriculture.		bachelors are prepared. The agro-advisory center is created	groups Total number of trained – 740 people, including 200 women
Lied: foster institutional leadership and policy change to support scaling up	Two draft standard and legal documents on effective use of pastures are submitted for consideration of the Government	1) Basic provisions of the concept of the draft bill of RUZ "About Pastures" are developed, 2) Changes are made to the Provision "About National Interdepartmental Coordination Council on Monitoring of Lands", and approved by the joint Resolution of the relevant ministries and departments	The official relations with the high-ranking politicians and persons making decisions at the national, regional and local levels and stakeholders (farmers, heads of WUA) are established	Relationships with the persons making decisions at national, sub-national and local level are established
Mobilize: achieve early tangible benefits and incentives for as many stakeholders as possible to engage in activities to scale up	Two design communities "Kazakhdarya" and "Kyzyl Ravat" with the population more than 5000 people are mobilized in the project actions Pasture Users Councils are created and pasture rotation is implemented.			Mobilization of local communities to joint decision-making on scaling out of SLM practices through PLUD workshops (4 WCAs in Kamashi and 1 WCA/ WUA in Zabdar). Total number of participants 160 persons.
Reflect and communicate	Two project communities and the population of nearby kishlaks have adopted and continue the actions initiated by the project		The agroadvisory center created on the basis of the project provides communication of land users with scientific developments and innovations in agriculture	Farmers of the project areas have accepted technology of diversification of cultures with introduction of bean. Mung is seeded as double crop after cleaning of a winter wheat on 2400 hectares in 2017.